

REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-10 are pending in the present application and have been amended by the present amendment.

In the outstanding Office Action, the Abstract was objected to; Claims 1-10 were rejected under 35 U.S.C. § 112, second paragraph; and Claims 1-10 were rejected under 35 U.S.C. § 103(a) as unpatentable over Enomoto in view of Giannakopoulos et al. and Tsukamoto.

Regarding the object to the Abstract, a new Abstract has been added in light of the comments noted in the outstanding Office Action. Accordingly, it is respectfully requested the objection to the Abstract be withdrawn.

Regarding the rejection of Claims 1-10 under 35 U.S.C. § 112, second paragraph, the appropriate claims have been amended in light of the comments noted in the outstanding Office Action and as shown in the marked-up version of the claims. In addition, regarding Claim 6, the outstanding Office Action indicates it is not clear how the sample mounting base, indenter, charged particle collecting element, indentation load detector, displacement detector and signal processing system are structurally related/connected. Applicants respectfully submit independent Claim 6 is definite as it currently stands. In more detail, independent Claim 6 recites that the apparatus includes a sample mounting base for mounting a test object, an indenter to be pressed into the test object, and a charged particle collecting element disposed in the vicinity of a front end portion of the indenter and formed integrally or independent from the indenter. These features are shown as non-limiting examples in Figures 1 and 2, for example, in which the apparatus includes a sample mounting base 3A for mounting a test object 10, an indenter 6 to be pressed into the test object 10 (note Figure 2

illustrates the indenter pressed into the test object 10), and a charged particle collecting element 8a disposed in the vicinity of the front end portion 7 of the indenter 6. Claim 6 also recites that the apparatus includes an indentation load detector for detecting an indentation load of the indenter, a displacement detector for detecting a displacement amount of the indenter, and a signal processing system for measuring at least one of a peel strength at the time of peel occurrence and a fragility breaking strength at the time of fragility breaking. The indentation load detector is illustrated in a non-limiting example as load detector 12 in Figures 1 and 2, and the displacement detector is illustrated in a non-limiting example as displacement detector 11 in Figures 1 and 2. Further, the signal processing system is illustrated in a non-limiting example in Figure 4, for example. It is respectfully submitted that in light of the claim and specification as a whole, Claim 6 is definite.

In addition, regarding Claim 5, the outstanding Office Action indicates the recitation “electric potential” is not clear what this element is and is also not clear why applying an element with the different polarities is done. Applicants note that with the peeling and breaking of the film, positive and negative charged particles will be emitted from a peeling start point and a breaking start point. Since these positive and negative charged particles are electrons, negative ions or positive ions, if an electric voltage having a polarity opposite to that of one specific sort of the charged particles is applied to the charged particle collecting element 8a or the charged particle collecting element 8b, it is possible to collect these charge particles by virtue of the charged particle collecting element (see page 8, lines 2-11).

Accordingly, it is respectfully requested this rejection be withdrawn.

Claims 1-10 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Enomoto in view of Giannakopoulos et al. and Tsukamoto. This rejection is respectfully traversed.

Independent Claim 1 is directed to a material strength measuring and evaluating method for measuring an evaluation of at least one of a peel strength and a fragility breaking

strength of a fragile thin film. The method includes pressing an indenter into a test object and measuring an indentation load and an indentation depth, while at the same time detecting charged particles emitted from a peel starting point or a breakage starting point. The method also includes specifying a peel occurring time and a fragility breaking time when charged particles are increased and measuring the at least one of the peel strength and the fragility breaking strength. Independent Claim 6 includes similar features but is directed to a material strength measuring and evaluating apparatus.

These features are shown in a non-limiting example in Figures 1 and 2, for example, as discussed above.

On the contrary, Enomoto discloses an indenter directly contacting a surface of the test material, that is, the emission source of charged particles functions as an electrode which collects the charged particles. The indenter 1 is connected to a detector 13 with a lead wire 4, in which an electric current is detected. This condition, as well as the material of the test material, must be in electric current passable condition.

In the present invention, charged particles emitted from an indenter are detected by a charged particle collecting element. What is detected is the charged particle, and not the electric current as disclosed in Enomoto. Accordingly, it is possible to detect the charged particles irrespective of the material of the test material in the present invention.

Giannakopoulos et al. and Tsukamoto also do not teach or suggest the features recited in independent Claims 1 and 6.

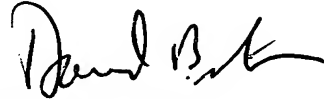
Accordingly, it is respectfully submitted independent Claims 1 and 6 and each of the claims depending therefrom are allowable.

In addition, the claims have been amended to address the rejection under 35 U.S.C. § 112, second paragraph, and to correct minor cosmetic informalities. The claims have not been amended to overcome any cited or applied art.

Consequently, in light of the above discussion and in view of the present amendment, the present application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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